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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/355,623	10/05/1999	OLLI PIIRAINEN	PM262375	6720

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EXAMINER

TRAN, TUAN A

ART UNIT	PAPER NUMBER
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2682

DATE MAILED: 01/30/2004

21

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/355,623

Applicant(s)

PIIRAINEN, OLLI

Examiner

Tuan A Tran

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-11, 13-15, 16-27 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kay et al. (5,357,513).

Regarding claim 1, Kay discloses a transmission method and apparatus used in a radio system that comprises at least one base station B (See figs. 1 and 37) and a number of subscriber terminals U at least two of which transmit access bursts to one and the same base station, the access burst activating between a subscriber terminal and a base station a connection that is established by a signal that is of a certain frequency and is sent in timeslots, characterized in that when the subscriber terminal is commanded to send the base station a signal that employs a timeslot and frequency that used by another subscriber terminal (See fig. 15 and col. 12 line 43 to col. 13 line 22), sending the subscriber terminal a command to adjust the transmission moment of signal so that the base station receives the transmitted signals at different moments within the same timeslot (See figs. 15-16, 23, 29-30, col. 13 lines 30-46, col. 15 line 8 to col. 16 line 48, col. 18 lines 3-16). However, Kay does not mention that the base station comprises a plurality of RF heads. Base station with multiple RF heads is well known in

Art Unit: 2682

the art; therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ multiple RF heads to the base station of the radio system as disclosed by Kay for the advantage of enhancing signal quality as well as extending coverage of the base station to areas where signals are degraded due to terrain or obstacles such mountains, trees, buildings or walls.

Regarding claim 2, Kay further discloses the transmission moment is adjusted before an actual connection is established (See col. 13 lines 59-60).

Regarding claims 3-4, Kay further discloses the command is sent to delay or advance the transmission moment of the signal (See figs 29-30 and col. 18 lines 3-10).

Regarding claims 5-6, Kay further discloses the command is sent to advance or delay the transmission moment at most an 11-bit period (See fig. 14 and col. 12 line 65 to col. 13 line 3).

Regarding claim 7, Kay further discloses the transmission moment of the signal is adjusted by at most the tail bits at the beginning of the burst and the guard period at the end of the burst (See fig. 14).

Regarding claim 8, Kay further discloses the impulse responses are formed from the signals received by the base station being defined to have a length of a minimum of substantially 3 bits (See fig. 18 and col. 14 lines 45-56).

Regarding claim 9, Kay further discloses at least two signals of the same frequency are separated from each other, the signals have been received by the base station from one and the same timeslot (See figs. 14-16).

Regarding claim 10, Kay further discloses the signals are separated by means of training sequences of signals received at different moments (See fig. 14 and col. 12 line 43 to col. 13 line 3).

Regarding claim 11, Kay further discloses the signals received by the base station are correlated and on the basis of correlation, the signal with the best quality and for example the highest energy is selected, and the signal is then used as a connection-establishing signal (See col. 15 lines 8-53).

Regarding claim 13, Kay further discloses the sent command is to change the signal transmission frequency, if the signal transmitted by the subscriber terminal interferes with a signal transmitted by another subscriber terminal (See col. 17 lines 53-68).

Regarding claim 14, Kay further discloses the frequencies used in different signals are predetermined (See figs. 15-17).

Regarding claim 15, Kay further discloses the signals are transmitted by the Time Division Multiple Access (TDMA) method (See figs. 15-17 and col. 3 lines 32-35).

Regarding claim 16, Kay discloses as cited in claim 1. Kay further discloses that the method is suited for cellular communication system utilized TDMA (See fig. 15-17 and col. 3 lines 32-35). However, Kay does not mention that the method is particularly suited for the radio system, for example, in offices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a method as disclosed by Kay in the radio system in offices for the advantage of extending the application of the method into various environments.

Art Unit: 2682

Claims 17-27 and 29-33 are rejected for the same reasons as set forth in claim 1-11 and 13-16, as apparatus.

2. Claims 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kay et al. (5,357,513) in view of Bjork et al. (6,084,862).

Regarding claim 12, Kay discloses as cited in claim 1. However, Kay does not explicitly mention that the signals received by the base station are correlated by means of a training sequence, the signal formed on the basis of the correlation are placed in windows, and the summed energies of the impulse responses of the signals placed in the window are compared. Bjork discloses signals received by the base station are correlated by means of a training sequence, the signal formed on the basis of the correlation are placed in windows, and the summed energies of the impulse responses of the signals placed in the window are compared (See figs. 2, 8 and col. 3 lines 30-50, col. 5 line 48 to col. 6 line 13, col. 6 lines 45-56, col. 9 line 18 to col. 12 line 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Bjork in the method and apparatus as disclosed by Kay for the advantage of making accurate measurements of time dispersion.

Claim 28 is rejected for the same reasons as set forth in claim 12, as apparatus.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2682

- Manabe (5,423,067) discloses digital mobile communications system and method for providing intensity/coverage reference maps using base stations and mobile stations.
- Mouly et al. (4,866,788) discloses process for controlling retransmission messages from transmitting stations belonging a cellular system.
- Uchida et al. (5,805,581) discloses mobile communication system using various multiple access methods.
- Howard Benn (GB 2308041) discloses radio communication system has centralized channel coding/decoding.

Response to Arguments

Applicant's arguments filed 10/09/2003 with respect to the rejection(s) of claim(s) 1-33 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan Tran** whose telephone number is **(703) 605-4255**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Vivian Chin**, can be reached at **(703) 308-6739**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Art Unit: 2682

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

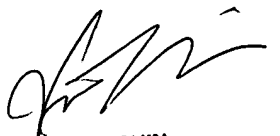
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Tuan Tran

AU 2682


VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600
1/26/04